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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,719	02/16/2001	Joseph D. Lichtenhan	AFB00563	8873

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EXAMINER

MOORE, MARGARET G

ART UNIT	PAPER NUMBER
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1712

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DATE MAILED: 01/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-4

Office Action Summary	Application No. 09/783,719	Applicant(s) LICHTENHAN ET AL.	
	Examiner Margaret G. Moore	Art Unit 1712	

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 15 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1 to 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1 and 2 is/are allowed.
- 6) ☐ Claim(s) 3 to 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

1. Claims 3 to 24 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3:

The structural formula for the "functionalized POSS derivative" that is formed is confusing. Note that the POSS that is reacted has "n" Si atoms, while the final product has "n" + "m" Si atoms. This is improper, since Si atoms are not added to the POSS during the reaction. It appears that the structural formula for the product should be $[(R\text{SiO}_{1.5})_{n-m}(RX\text{SiO}_{1.0})_m]$ #.

Claim 5:

The POSS compounds to be opened are confusing for various reasons.

First, the difference between the first structure and the second structure is unclear, since R and R³ have the same definition. Also the presence of "m" units in the reactant POSS is not within the breadth of the POSS reactant in claim 3.

The third formula does not fit within the limitations of the POSS reactant in claim 3 since such "m" units are not within the reactant structure in claim 3. Also for the second and third formulas, it is unclear if the definition of "m" for the product POSS applies to the "m" in the reactant POSS.

Finally, it is unclear what "group" the R¹, R² and R³ substituents are selected from since "or" indicates that the substituents are in the alternative, and thus no group is present. See M.P.E.P 2173.05(h), drawn to alternative limitations, specifically Markush groups.

Claim 10:

The definition of R³ is confusing, since reference to "the same group as R" makes no sense. The Examiner suggests inserting the phrase "R is selected from the group consisting of" into claim 3 to make the language in claim 10 clear. Also it is unclear how this formula corresponds to the reactant POSS in claim 3, since there are no "m" units in the POSS reactant of claim 3.

Claim 11:

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It is unclear how the reactant POSS forms the final POSS since there is one less Si atom in the final product. Note the rejection of claim 10, supra, as it applies to the definition of R^3 .

Claim 12:

Reference to formula 7, 8 and 9 is improper since the formulas shown have different numbers.

Claim 16:

The reactant of formula 6 is confusing since R^3 is not in the formula in claim 3, and the phrase "is from the same group of R" is confusing.

X not defined

Claim 17:

Note the rejection of claim 16, as it presently applies. Particularly note that the phrase " R^3 not equivalent to R in this example" makes no sense.

Claim 18:

It is unclear what is meant by "... compound comprising, ...". This makes it unclear if the claimed compound merely contains these units, or if it is limited to this structure.

Claim 19:

Reference to "all formulas 7-16 above" lacks antecedent basis. This claim depends upon claim ~~25~~¹⁸ only and no such formulas are present in that claim.

Claim 20:

It is unclear what is intended by the phrase "a method for expanding rings". The Examiner notes that the reactant contains " n " + " m " units, while the final product contains " n " + " j " units. However, since " m " and " j " can both be 1, there will be the same number of Si atoms in the original ring as in the final ring. It is unclear, then, how this is considered "expanding".

Claim 26:

Reference to "formulas 17, 18 & 5 above" lacks antecedent basis. This claim depends upon claim 25 only and no such formulas are present in that claim.

Claim Rejections - 35 USC § 102 and 103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Lichtenhan et al. '562.

The Examiner notes that this rejection is consistent with that made in the parent application. Note Formula 1 on column 3. The group OA can be a hydroxyl group, meeting that claimed. See particularly Example 1 which shows such a compound.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20 to 26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lichtenhan et al. '562.

This rejection also relies on the rationale detailed in the parent application. Patentees teach a process in which a POSS compound having the same formulas as the reactant in claim 20 is reacted with a silane reagent meeting that used in claim 20. Since the reactants are the same, and the reaction conditions are the same, one would expect that the reaction product would inherently be the same. The claimed process is identical to that in Lichtenhan et al. From this it would necessarily follow that the result of identical processes will inherently be the same. Thus while patentees do not specifically state that there is an expanded POSS ring present in the reaction product, it follows that at least some will be inherently present.

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Allowabl Subject Matter

6. Claims 1 and 2 are allowed. Claims 3 to 17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The prior art fails to teach or suggest these methods. The Lichtenhan et al. references '417, '053, '638, '576 and '867 are cited as being of general interest for teaching various POSS compounds. Banaszak Holl et al. is also cited as being of general interest. None of these references teach or suggest the a method for treating POSS compounds with an acid as claimed.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret G. Moore whose telephone number is 703-308-4334. The examiner can normally be reached on Tues. and Thurs. 6:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on 703-308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9311 for regular communications and 703-872-9310 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Margaret G. Moore
Primary Examiner
Art Unit 1712

mgm
January 12, 2002